Leyland Line steamer *Barbadian* reached St. Thomas from Liverpool on the morning of Saturday the 7th and reported having encountered a southwest gale on Thursday the 5th, changing to a northwest gale on Friday the 6th. In the absence of more precise information we can only deduce from this that the storm center was north of the ship's position at some time in the course of Thursday night, when she would be between 200 and 300 miles from St. Thomas. Again, the three-masted schooner, *Hattie C. Luce*, which arrived at St. Thomas with a cargo of ice on the 10th, reported having met with a hurricane in the neighborhood of Sombrero, with the consequent loss of some of her sails.

It has not been possible to find much information bearing on the earlier course of the cyclone, that is to say its track before it moved, or while it was moving, say from west-northwest to east-southeast; it may, however, be noted that the S. S. *Parima*, of the Quebec Line, arriving at St. Thomas on the morning of the 7th, reported bad weather "all the way out," and that the S. S. *Praesident*, of the Hamburg-American Line, which left St. Thomas for San Juan, Santo Domingo City, etc., on the 3d of the month, fell in with a gale as she was passing thru the Mona Passage on the night of the 4th; but we have no details from either of those vessels.

From the above it would seem that the cyclone in question followed a track opposite in every particular to the track usually followed by cyclones originating within the Tropics in the hurricane season. For its curve, instead of being convex toward the west, was convex toward the east, and was made by a movement southward instead of northward; its track before making the curve was apparently from about west-northwest to east-southeast, instead of being from east-southeast to west-northwest; and its track after passing the curve was from northeast to southwest, instead of being from southwest to northeast. It seems that the storm must have died out in the eastern part of the Caribbean, for nothing has been heard of it from any of the large islands to leeward.

The movements of the high clouds, as seen from St. Croix, failed to throw any light on the movements of the vortex of the storm. High clouds were seen here on the 28th of February, moving from west by north, and again on the 29th and on March 1, on both of which days they were moving from west by south. After the 1st no high clouds were seen, altho there was a good deal of blue sky the whole time, and the writer frequently lookt for them. There is presumably a good deal to be learned about the movements of the higher air during the passage of a cyclone, and even a negative result, as in the present case, may have some value among the observations necessary to throw light on this interesting branch of inquiry.

TORNADO AT PEKIN, ILL., MARCH 27, 1908.

By DEWEY A. SEELEY. Dated Peoria, Ill., April 6, 1908.

A severe local storm occurred at Pekin, Ill., March 27, 1908. A lengthy newspaper account may be found in the Peoria Journal of March 28.

I visited the scene of this destruction a few days after the storm occurred and am of the opinion that the storm was tornadic in character, altho of small proportions.

The storm traveled in a northeasterly direction, starting in the southwestern portion of the city at the outskirts, thereby traversing the southeastern section.

The débris was scattered in all directions, but was mostly carried northeastward along the storm's path. The storm occurred about 8:30 p. m. As far as I could learn no one observed a funnel-shaped cloud or other extraordinary phenomena. The rain accompanying the storm was reported to be very heavy. No hail was reported to have fallen. Several witnesses spoke of the unusual and peculiar attendant noises. There were several indications of the presence of a whirl, the débris being distributed in all directions. A whirling motion was also indicated by the fact that several barns and outbuildings were lifted from their foundations and dropt some distance away, bottom side up. The roof of one store building was carried away and the front windowpanes of the store blown outward.

The trees and other débris lay in an easterly direction in the center line of greatest destruction. On the right side the direction was mostly easterly, and on the left, more to the north. The path, as far as it was traced, was probably about one and one-half miles in length, and the width at the point of greatest destruction did not exceed 150 feet. The storm seemed to jump, from time to time, over distances varying from one to three blocks, leaving the property in these places unmolested, then to proceed with its destructive effect for one or two hundred feet. No persons were killed by the storm.

WINDSTORM AT PEORIA, ILL., MAY 5, 1908.

By DEWEY A. SEELEY, Observer. Dated Peoria, Ill., May 7, 1908.

A windstorm occurred in this city about 3 a. m., May 5, 1908. An account is published in the Peoria Star of that day.

I am of the opinion that the storm was somewhat tornadic in character. However, the devastation in but one locality points to this conclusion. I have searched in all directions for evidences of destruction resulting from circular wind movement without finding any other.

The wind was high easterly during the early morning. It swept across Peoria Lake, which lies along the northeastern border of the city. This is simply a widening of the Illinois River, probably a half-mile across. The waves were reported to be six or eight feet high on the west side of this lake, and considerable damage resulted to small boat houses and craft along the shore.

The store buildings which were damaged were 1,000 feet away from the shore, on a bluff probably 50 feet high, and were four to eight-story buildings.

May it not be possible that the circular motion evidenced by the wind when it reached these buildings was due to an eddy caused by the wind rushing between the buildings?

A window on the southwest side of the Schipper and Block Building was blown outward, every particle of glass falling outside of the building. A tile was lifted from the edge of the roof, raised several feet in the air, and dasht into a cupola. The gravel over a small section of the roof near the point from which the tile was taken was entirely cleaned away, while a few feet distant an unprotected lumber pile containing small pieces of timber, was unmolested. Across the street another small window was demolished, the glass in this case also all falling outside the building. It was carried toward the northeast, that is, in just the opposite direction from the glass on the former building.

The barograph trace at the Weather Bureau station, which is located about one and one-half miles northwest of the damaged stores, exhibited a sudden fall in pressure of about 0.17 of an inch, and an equally abrupt rise at the time the damage was done. The wind direction pens recorded every direction during the time, changing rapidly from one point to another. No thunder and lightning accompanied the disturbance, and no rain fell at the time. The highest wind velocity for a five-minute period recorded at the station was 36 miles an hour, and no single mile was registered at a much higher rate.

ICE CONDITIONS ON THE GREAT LAKES, WINTER OF 1907-8.[1]

By NORMAN B. CONGER, Inspector and Marine Agent. Dated Detroit, Mich., May 16, 1908.

The amount of ice on the Great Lakes during the winter of

[1] Similar details as to ice in the Great Lakes will be found for the winters of 1899–1907 in the Lake Charts for those years, as compiled by Mr. N. B. Conger and Prof. A. J. Henry and published semiannually by the Weather Bureau.

1907–8 was about the same as for the previous winter. It was not as heavy, but the fields in Lakes Superior, Huron, and Erie were more extensive. In Michigan the conditions were normal, except that the ice in Green Bay remained intact longer than the year preceding. Over the western portion of Lake Superior the fields were not very extensive at any time. Over the eastern portion, during the month of March, the fields were at times quite extensive, extending from Keweenaw Point eastward to Whitefish Point. These fields were moving with the winds and were not at any time reported as being heavy. In Whitefish Bay the ice was not as heavy as usual.

In Lake Michigan the ice fields were confined mostly to the northern portion, altho ice was reported over the southern portion for about ninety days during the entire winter. From Traverse Bay northward the field was solid and did not break up until the latter part of April, when brisk westerly winds broke up the ice and moved a portion of it thru the Straits of Mackinaw into Lake Huron.

At the Straits the ice was not heavy and did not windrow until the breaking up began in April. Westerly winds moved the ice fields in from Lake Michigan, windrowing the ice in the straits and forcing some of it into Lake Huron.

In Lake Huron the ice fields over the northern portion were moving with the wind during the winter, and did not reach any great thickness. The field movement indicates that the ice did not extend far out into the lake. At the southern end the ice field formed but one bridge (at Port Huron), and when that one broke on March 16, 1908, it was not again formed and the ice fields practically disappeared from the southern portion.

There was very little trouble with the ice in the rivers. At Detroit the ice impeded navigation from about January 29 to February 10, 1908.

In Lake Erie there appeared to be more ice than during the preceding year, but the fields over the western portion moved out from shore and down to the east end, so that on the average the period of ice fields was shorter than last year. The packing of the ice fields at the east end is a yearly feature on this lake on account of the prevailing southwesterly winds. The ice did not disappear at the east end until May 9, 1908.

In Lake Ontario there was less ice than has been reported in previous years. The fields were small and did not remain long.

Comparing the period during which ice was reported in the several harbors with the same period last year, the ice did not remain as long. The average for all the lakes this year was 98 days and for 1906–7 was 104 days. The record by lakes is shown in Table 1; while the dates of opening and closing of navigation at the principal ports are stated in Table 2.

TABLE 1.—*Duration of ice in harbors on the Great Lakes (averages by lakes).*

Lake.	1906–7.	1907–8.
	Days.	*Days.*
Superior	129	121
Michigan	89	90
Huron	103	108
Erie	93	91
Ontario	103	82

TABLE 2.—*Dates of opening and closing of navigation on the Great Lakes, season of 1907–8.*

Stations.	Closed.	Opened.	Remarks.
Lake Superior.			
Duluth	Dec 12,1907	Apr. 8,1908	
Whitefish Point	.....	Apr. 25,1908	
Sault Sainte Marie	Dec. 10,1907	Apr. 24,1908	
St. Mary River	Jan. 27,1908	Mar. 26,1908	
Lake Michigan.			
Escanaba	Dec. 11,1907	Apr. 19,1908	
Kewaunee	.....	.....	Open all winter.
Michigan City	Feb. 1,1908	Mar. 10,1908	
Manitowoc	.....	.....	Open all winter.
Milwaukee	.....	.....	Closed on two days only.
Racine	.....	.....	Open all winter.
Macatawa	.....	Mar. 17,1908	
Grand Haven	.....	.....	Open all winter.
Manistee	.....	.....	Open all winter.
Mackinaw	Dec. 18,1907	Apr. 19,1908	
Lake Huron.			
Oscoda	Jan. 18,1908	Mar. 19,1908	
St. Clair River.			
Port Huron	Jan. 24,1908	Mar. 16,1908	
Detroit River.			
Detroit	Dec. 18,1907	Apr. 1,1908	The Detroit and Cleveland line stopt on December 7, 1907, but steamer *Mary Boyce* past down on the 18th.
Lake Erie.			
Sandusky	Dec. 15,1907	Mar. 9,1908	
Conneaut	.....	Mar. 17,1908	
Erie	Jan. 21,1908	Mar. 14,1908	
Buffalo	Dec. 22,1907	Apr. 25,1908	
Lake Ontario.			
Charlotte	.....	Feb. 3,1908	
Oswego	.....	Apr. 9,1908	
Welland Canal	.....	Apr. 14,1908	

TABLE 3.—*The ice conditions on the Great Lakes during the winter of 1907–8.*

LAKE SUPERIOR.

Stations.	Ice first formed.	Maximum thickness.		Ice disappeared.	Remarks.
		Inches.	Date.		
Duluth, Minn	Nov. 22,1907	24.0	Jan. 20,1908	Apr. 15,1908	The harbor was partially or wholly covered with ice about the usual length of time, but the average thickness was from 5 to 7 inches less than the 10-year mean. In the lake there was more or less ice visible from January 29 to April 5, but the area and thickness were both below the 10-year average.
Bayfield, Wis	Jan. 8,1908	21.0	Mar. 25,1908	Apr. 18,1908	
Washburn, Wis	Dec. 20,1907	27.0	Feb. 15,1908	Apr. 15,1908	
Ashland, Wis	Dec. 7,1907	28.0	Mar. 5,1908	Apr. 18,1908	A very mild winter. There was but little snow until after the latter part of February, and no heavy snowfalls.
Ship Canal, Mich	Nov. 27,1907	14.0	Feb. 27,1908	Apr. 18,1908	The ice has entirely disappeared (April 20, 1908) from the lake in the vicinity of this station.
Houghton, Mich	Nov. 30,1907	21.0	Mar. 10,1908	.....	The ice disappeared in the upper entry about April 20, and from Big Portage about April 25 or 26, 1908. There was less than the usual amount of ice.
Eagle Harbor, Mich	Jan. 2,1908	18.0	Mar. 5,1908	Apr. 13,1908	The ice in the lake was broken and moving with the wind thruout the winter.
Marquette, Mich	Jan. 27,1908	8.0	Mar. 21,1908	Apr. 5,1908	The ice did not begin to form until the last week in January. From then till February 22 it would scarcely attain a thickness of 1 or 2 inches when the wind would break it up and cause it to drift out.
Munising, Mich	Jan. 10,1908	20.0	Mar. 30,1908	Apr. 23,1908	All floating ice in bay and lake disappeared on the night of April 23.
Grand Marais, Mich	Dec. 3,1907	30.0	Mar. 15,1908	Apr. 28,1908	The ice fields were not as extensive as in former years, and but little ice appeared in the lake until about March 1. Some few banks remain along the shore (April 28) tho the bay and lake are clear of ice.
Whitefish Point, Mich	Feb. 1,1908	20.0	Mar. 20,1908	May 1,1908	The ice had practically disappeared on May 1, tho there still remained some small floes and a few banks along shore. Field ice made its appearance off this point on February 16, and moved with every shift of the wind till it disappeared. The fields were as extensive, but not as heavy as one year ago. The first boat past thru the ice with ease April 25.
Sault Sainte Marie, Mich	Nov. 29,1907	17.0	Feb. 24,1908	May 1,1908	The ice has practically disappeared tho small quantities of floating ice were observed on May 1. Hay Lake was frozen so that people were crossing on the ice on January 5.

TABLE 3.—*The ice conditions on the Great Lakes during the winter of 1907–8*—Continued.

LAKE MICHIGAN.

Stations.	Ice first formed.	Maximum thickness.		Ice disappeared.	Remarks.
		Inches.	Date.		
Gladstone, Mich	Nov. 14, 1907	28.0	Mar. 30, 1908	Apr. 19, 1908	Upper bay still (April 20) partially covered by floating ice; lower bay clear.
Escanaba, Mich	Dec. 30, 1907	28.0	Mar. 16, 1908	Apr. 19, 1908	Little Bay de Noquette not permanently frozen over until January 13. The ice in the lower portion of the bay went out April 15.
Menominee, Mich	Dec. 5, 1907	18.0	Mar. 3, 1908	Apr. 14, 1908	Floating ice fields became solid about January 28, and broke up April 10.
Green Bay, Wis	Dec. 2, 1907	18.0	Feb. 13, 1908	Mar. 13, 1908	The ice disappeared in this end of the bay on April 11, 1908.
Sturgeon Bay, Wis	Dec. 11, 1907	22.0	Feb. 25, 1908	Apr. 14, 1908	The canal froze over once tho at no time during the winter was there sufficient ice to prevent boats from entering the canal from the lake.
Kewaunee, Wis	Dec. 15, 1907	3.0		Mar. 15, 1908	Navigation open all winter.
Manitowoc, Wis	Nov. 20, 1907	18.0	Jan. 20, 1908	Mar. 10, 1908	The ice fields did not materially interfere with the ferries at this port during the past winter.
Sheboygan, Wis	Dec. 18, 1907	18.0	Feb. 1, 1908	Mar. 20, 1908	No ice fields were observed off this port during the past winter.
Milwaukee, Wis	Dec. 12, 1907		Mar. 1, 1908	Mar. 6, 1908	The first ice on the slips near the mouth of the river formed on January 9, and reached a maximum thickness of 5 inches February 4 and 5. This ice disappeared March 17, 1908. There was considerable slush ice in the bay and river from the last part of January till the first part of March and at times it extended to a depth of from 6 to 12 feet. Navigation was interrupted on only two days, February 5 and March 1, when strong easterly winds packed the ice in the bay. Clear water was in sight all winter.
Racine, Wis	Jan. 17, 1908			Mar. 28, 1908	The harbor at this port was clear of ice all winter. Dates given refer to first and last ice observed in the lake off this port.
Kenosha, Wis					No report received.
Chicago, Ill	Jan. 9, 1908	5.0	Jan. 31, 1908	Mar. 8, 1908	There was much less ice during the past winter than usual. During the last week of January the ice was solid for some distance out, at other times there were only floating fields.
Michigan City, Ind	Dec. 1, 1907	15.0	Feb. 20, 1908	Apr. 1, 1908	The ice which formed on December 1 soon melted and the harbor remained open until February. There was not as much ice in the lake as usual.
St. Joseph, Mich	Jan. 10, 1908	10.0	Feb. 15, 1908	Mar. 1, 1908	
South Haven, Mich	Jan. 13, 1908	8.0	Jan. 24, 1908	Mar. 24, 1908	There was but a small amount of field ice this winter. Open water was visible at all times.
Saugatuck, Mich	Dec. 21, 1907	12.0	Jan. 31, 1908	Apr. 12, 1908	
Holland, Mich	Dec. 2, 1907	6.0	Jan. 2, 1908	Mar. 18, 1908	
Macatawa, Mich	Feb. 1, 1908	10.0	Feb. 18, 1908	Mar. 18, 1908	There has been very little ice in Lake Michigan off this port during the past winter.
Grand Haven, Mich	Jan. 23, 1908	2.0	Feb. 10, 1908	Mar. 16, 1908	There has been somewhat less ice here than in previous years and it has caused but little trouble to navigation. Interruptions of a few hours duration on January 25, February 2 and 6, were due to the ice fields being driven in by westerly winds and choking the harbor entrance.
Muskegon, Mich	Dec. 15, 1907	14.0	Feb. 1, 1908	Apr. 1, 1908	The ice fields extended out 500 feet and along the north and south shore as far as the eye could reach.
Ludington, Mich	Dec. 8, 1907	15.0	Feb. 24, 1908	Mar. 28, 1908	There was very little ice in Lake Michigan visible from this station and no large fields were observed during the past winter.
Manistee, Mich	Dec. 9, 1907	18.0	Mar. 1, 1908	Mar. 30, 1908	There was less floating ice and the shore ice did not extend out as far as usual. Passenger steamers have entered this harbor every week during the past winter without material difficulty from ice.
Glenhaven, Mich	Feb. 20, 1908	5.0	Mar. 5, 1908	Mar. 7, 1908	
Frankfort, Mich			Jan. 14, 1908	Mar. 20, 1908	No heavy ice was visible in Lake Michigan off this port during the past winter.
South Manitou, Mich	Feb. 28, 1908	4.0	Mar. 7, 1908	Mar. 21, 1908	Fresh southerly winds drove the floating ice northward on March 21, and it did not appear again.
North Manitou, Mich	Feb. 15, 1908	7.0	Mar. 7, 1908	Mar. 20, 1908	The ice moved off shore on March 10.
Charlevoix, Mich	Feb. 8, 1908	14.0	Mar. 1, 1908	Apr. 20, 1908	
Harbor Springs, Mich	Jan. 26, 1908	14.0	Feb. 20, 1908	Apr. 24, 1908	
Beaver Island, Mich	Jan. 21, 1908	20.0	Mar. 17, 1908	Apr. 20, 1908	The ice was mostly smooth and clear; no pack ice observed.
Mackinaw, Mich	Dec. 24, 1907	18.0	Jan. 30, 1908	May 7, 1908	The maximum thickness of 18 inches represents the greatest thickness to which ice formed. The last ice in the straits was heavily windrowed fields which were driven in from Lake Michigan by the wind, and they past on into Lake Huron.

LAKE HURON.

Mackinac Island, Mich	Jan. 15, 1908	24.0	Mar. 3, 1908	Apr. 25, 1908	The average thickness of the ice in the straits was but 12 inches. The first crossing to the mainland on the ice was on February 3, 1908.
Detour, Mich	Dec. 25, 1907	20.0	Feb. —, 1908	Apr. 28, 1908	The river and the lake off this station were practically free of ice on April 28, tho among the islands to the east of the station there was considerable floating ice which the wind had driven out of Georgian Bay.
Cheboygan, Mich	Jan. —, 1908	22.0	Feb. —, 1908	May 1, 1908	The ice broke up and this end of the straits cleared on April 18, 1908.
Presque Isle Light, Mich	Dec. 5, 1907	20.0	Feb. 25, 1908	Apr. 20, 1908	During the month of February and the earlier part of March the ice fields were large and extended beyond vision, tho some open water could be seen at times.
Middle Island, Mich	Nov. 15, 1907	8.0	Mar. —, 1908	Apr. 15, 1908	The ice was on the move all winter, hence did not form to as great a thickness as usual. It did not appear in any quantity until about January 15.
Thunder Bay Island, Mich	Jan. 1, 1908	12.0	Mar. —, 1908	Apr. 5, 1908	The ice was kept on the move and broken up by heavy east and northeast gales all the past winter. The snow was deep and some of it remained on the ground on April 25.
Alpena, Mich	Dec. 20, 1907	9.0	Mar. 10, 1908	Mar. 17, 1908	High northwest winds prevented the formation of solid ice in the bay during the early winter. The ice became solid February 16 and continued intact until March 15.
Oscoda, Mich	Dec. 10, 1907	12.0	Jan. 25, 1908	Mar. 13, 1908	Open water has been visible off this port all winter.
Ottawa Point, Mich	Dec. 2, 1907	16.0	Mar. 1, 1908	Mar. 27, 1908	There was but little field ice off this port during the past winter.
Bay City, Mich	Dec. 7, 1907	20.0	Jan. —, 1908	Apr. 12, 1908	
Pointe aux Barques, Mich	Dec. 10, 1907	24.0	Feb. 29, 1908	Mar. 25, 1908	The field ice was about the same in extent as in former years.
Harbor Beach, Mich		18.0	Mar. 20, 1908	Mar. 31, 1908	There was no great amount of ice in the lake off this port during the past winter.
Lake View Beach, Mich	Feb. 1, 1908	12.0	Mar. 20, 1908	Mar. 26, 1908	
Port Huron, Mich	Dec. 8, 1907	20.0	Feb. 10, 1908	Mar. 16, 1908	The first ice from the lake ran into St. Clair River on January 23, and on the following day it was solid from Miller's coal dock, southward. On January 28 the river was jammed with ice from Lake Huron to Lake St. Clair, and the first ice bridge formed at the foot of the lake. On February 13 the ice dropt as far south as the head of Stag Island, and the river at this point was practically free from ice during the remainder of the season. On March 16 southerly winds caused the ice field at the foot of the lake to move northward, and the lower end of the lake was practically free from ice after that date.

DETROIT RIVER.

Detroit, Mich	Dec. 13, 1907	14.0	Feb. 10, 1908	Mar. 28, 1908	Local navigation was seriously impeded by ice from January 29 to about February 10.

LAKE ERIE.

Toledo, Ohio	Dec. 5, 1907	9.5	Feb. 7, 1908	Mar. 9, 1908	Ice that remained more than one day did not form until January 9, 1908. Maumee Bay froze over about January 16, 1908. The maximum thickness of ice on Maumee Bay was probably 12 to 15 inches on February 7 to 10.
Put-in-Bay, Ohio	Dec. 24, 1907	16.0	Feb. 10, 1908	Mar. 26, 1908	Teams did not cross to the main shore this winter. The heaviest ice was to the westward and northward of the island.
Kelleys Island, Ohio	Jan. 10, 1908	16.0	Feb. 10, 1908	Mar. 10, 1908	The south channel was not frozen over during the winter.
Marblehead, Ohio	Dec. 20, 1907	10.0	Feb. 19, 1908	Mar. 27, 1908	The ice off this point was not stationary at any time during the winter.
Sandusky, Ohio	Dec. 3, 1907	13.0	Feb. 10, 1908	Mar. 13, 1908	The ice was solid over the entire bay from January 8 to March 6, when heavy rains and prevailing strong southwest winds caused it to soften and break up. The lake was practically clear of ice after March 9.
Huron, Ohio				Mar. 9, 1908	
Lorain, Ohio	Jan. 14, 1908	14.0	Jan. 27, 1908	Mar. 13, 1908	From January 24 to February 26 ice covered the lake off this port. The ice began to move away on March 6.

TABLE 3.—*The ice conditions on the Great Lakes during the winter of 1907–8*—Continued.

LAKE ERIE—*Continued.*

Stations.	Ice first formed.	Maximum thickness.		Ice disappeared.	Remarks.
		Inches.	Date.		
Cleveland, Ohio	Jan. 14, 1908	9.0	Feb. 20, 1908	Mar. 15, 1908	The lake was covered with ice in all directions from February 8 to 25. The closed season was one of the shortest during the last ten years; in both lake and harbor the thickness of ice fell much below the average for that period. The date of formation of ice in the harbor was the latest in the last ten years.
Fairport, Ohio	Dec. 11, 1907	14.0	Feb. 20, 1908	Mar. 7, 1908	
Ashtabula, Ohio	Jan. 15, 1908	11.0	Feb. —, 1908	Mar. 30, 1908	
Conneaut, Ohio	Dec. 2, 1907	14.0	Feb. 10, 1908	Apr. 1, 1908	Ice fields first appeared in the lake off this port January 9, 1908. There was more ice in the lake this year than last.
Erie, Pa	Dec. 18, 1907	12.5	Feb. 10, 1908	Apr. —, 1908	The harbor was partially frozen over from December 18 to 30, and again during the second week in January. Ice covered the lake as far as the eye could reach from February 3 to 26, after which it was broken up and drifted with the wind until early in April.
Dunkirk, N. Y	Jan. 12, 1908	9.0	Feb. 10, 1908	Apr. 17, 1908	
Buffalo, N. Y	Dec. 20, 1907	13.5	Feb. 10, 1908	May 9, 1908	The entire harbor was not frozen over till January 24, when most of this end of the lake was covered with thin floating ice for the first time. Solid ice first extended up the lake beyond vision on January 31, and it did not begin to break up till March 28. This end of the lake was practically covered with heavy ice fields from that date till May 1, after which the ice rapidly disappeared from the lake. The harbor was free of ice after March 23.
LAKE ONTARIO.					
Fort Niagara, N. Y	Jan. 24, 1908	12.0	Feb. 4, 1908	Apr. 10, 1908	
Charlotte, N. Y	Jan. 29, 1908	2.0	Feb. 3, 1908	Mar. —, 1908	But one small field of ice in the lake was observed after February 3, 1908.
Sodus Point, N. Y	Jan. 8, 1908	18.0	Feb. 20, 1908	Mar. 28, 1908	Only a few small ice fields observed in the lake off this port during the past winter.
North Fair Haven, N. Y	Jan. 4, 1908	16.0	Feb. 5, 1908	Mar. 28, 1908	There was very little ice in the lake at any time during the past winter, much less than usual.
Oswego, N. Y	Dec. 16, 1907	12.0	Mar. 2, 1908	Mar. 15, 1908	There was much less field ice during the past winter than usual, but considerable ice formed on the shore.
Sacketts Harbor, N. Y	Jan. 9, 1908	16.0	Mar. 10, 1908	Apr. 2, 1908	
Cape Vincent, N. Y	Jan. 15, 1908	15.0	Mar. 15, 1908	Apr. 10, 1908	
Ogdensburg, N. Y	Dec. 28, 1907	18.0	Feb. 15, 1908	Apr. 7, 1908	The ice was very slow to form in the river this winter. A heavy fall of snow prevented its freezing to any considerable thickness until in February.

EARLY METEOROLOGY AT HARVARD COLLEGE.

By B. M. VARNEY, Assistant in Meteorology. Dated Cambridge, Mass., June 6, 1908.

In the course of some work among the stacks and manuscripts of the Harvard College Library, the writer recently happened upon material relating to the early connection of Harvard with meteorology. The various writings which concern the early stages of this science in America seem worth presenting in outline, for their interest to present-day meteorologists.

The first definite mention of the subject, as directly concerning Harvard College, is to be found in a printed announcement of lectures by Isaac Greenwood, the first Hollis Professor of Mathematics and Natural Philosophy. His term of service extended from 1727[1] to 1738, inclusive. The lectures seem not to have been regularly presented to his classes, but were apparently delivered in public, under conditions which will be mentioned presently. They were accompanied by "a great variety of curious experiments," and numbered twelve in all. They were divided into three "articles." The last was entitled "Of the True Causes of the Principal Phænomena in Nature, by Means of the Newtonian Laws of Matter and Motion." The subjects of this third article occupied the last three lectures. First came "A View of the World Around Us Subject to these Laws;" then "An Enumeration of the Phænomena of the Solar System," with the inevitable "curious experiments;" then "Gravity * * * Fluids, Hydrostatical and Pneumatical;" and lastly, "Of the Action of the Sun and Moon Upon the Atmosphere and bodies contained therein * * * where with many other curiosities a particular consideration will be taken of Dr. Desagulier's late Theory of the Rise of Vapors and formation of clouds and Meteors, with his experiments concerning them."

The word *curiosity* is a good comment on the mental attitude toward science of the public of the early seventeen hundreds, and of the early nineteen hundreds as well. Greenwood's little syllabus is arranged in a fashion well calculated to appeal to prospective audiences, for it states not only that "the apparatus is compleat for the experiments," but that it "will be enlarged with new machines and models of some curious engines, lately invented, if there be a full course." At the end, however, comes this announcement: "Every subscriber to pay four pounds, one at the time of subscription, and the remainder on the third and sixth days of the course."

What lectures on meteorology Professor Greenwood gave before his regular classes does not appear; they probably embodied some or all of the "curious experiments," and probably occupied a very minor part of the whole course. This is quite to be expected; meteorology as such was almost unthought of in America at the time, and was everywhere treated as a small part of the general course on natural philosophy.

Greenwood's official successor was John Winthrop, who held his position from 1738 to 1779. During this long period of service he gave a series of lectures which must have attracted many students. The record of these is contained in a little leather-bound, closely-written note book, entitled "Summary of a Course of Experimental and Philosophical Lectures." The course hardly occupied the time of what is now called at Harvard a half-course, for it extended only from March 10 (the first year being 1746) to June 16. Winthrop's treatment of meteorology was considerably more elaborate than that of his predecessor; it included the atmosphere, the thermometer, and the barometer and its uses even to the measurement of altitudes. It is interesting to note the careful correlation he made between weather changes and the variations in the height of the mercury-column, the prevalence of high pressures when the wind is northerly, and the greater variation of pressures in winter. He gave a maximum variation for this country of two inches, from 28.75 to 30.75 inches.

Near the close of the twenty-fifth lecture, he writes thus: "Thermometers are of different kinds; as of air which forces water up into a tube by its elasticity, but it will never answer the (purpose?) because it's a barometer and thermometer too. They have till lately been made of spirits of wine; but those made of mercury are esteemed the best because they are most easily affected." Winthrop kept a personal meteorological record for about twenty years, beginning with 1742. The thermometer was "of Mr. Hawksbee's make", filled with spirits of wine. Its scale, an astonishing contrivance, began above at 0°, had its freezing point below at 65° and extended down

[1] This was the year of the death of Sir Isaac Newton.—*C. A.*